

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of providing sonoluminescent light inside a mammalian body for a medical purpose, comprising the steps of:

placing at least a distal portion of an elongated medical device with a source for producing sonoluminescent light at a distal tip thereof inside the body, the source including:

_____ a housing that is shaped to reflect and concentrate acoustic waves within an enclosed acoustic conducting medium;

_____ a piezoelectric transducer;

_____ a wave matching layer positioned adjacent the piezoelectric transducer;

_____ a focusing lens having a flat surface adjacent the wave matching layer and a concave surface adjacent the acoustic conducting medium that focuses sound waves in the acoustic conducting medium;

_____ at least two electrodes for delivering pulses to the piezoelectric transducer and the wave matching layer; and

~~wherein the sonoluminescent light is produced by providing one or more high voltage pulses to the electrodes to emit sonoluminescent light from the source inside the body for the medical purpose, wherein the conducting medium is enclosed by a wall having a substantially constant inner diameter from the focusing lens to the distal end, and by a wall at the distal end being concavely curved on the inside to permit reflection and concentration of the sound waves by the inside of the distal wall.~~

2-4. (Canceled)

5. (Previously presented) The method of claim 1 wherein the housing is at least partly transparent to the sonoluminescent light emitted from the source.

6. (Canceled)

7. (Previously presented) The method of claim 5, further comprising using water as at least a part of the acoustic conducting medium.

8-14. (Canceled)

15. (Previously presented) The method of claim 1, further comprising the step of filtering at least a portion of the emitted sonoluminescent light such that only light within a predetermined range of wavelengths is emitted from the source.

16. (Canceled)

17. (Previously presented) The method of claim 1 wherein the sonoluminescent light emitted from the source comprises x-ray radiation.

18-19. (Canceled)

20. (Withdrawn) A method of generating light inside a mammalian body, comprising the steps of:

placing at least a distal portion of an interventional device inside a mammalian body, the distal device portion comprising an arc lamp;

electrically connecting the arc lamp through a proximal end of the interventional device to an energy source; and

causing the arc lamp to generate an arc inside the body.

21. (Withdrawn) The method of claim 20, wherein the arc lamp comprises a housing, and a first and a second electrode positioned inside the housing, the step of generating an arc comprising striking an arc between the first and second electrodes.

22. (Withdrawn) The method of claim 21 wherein the first electrode has a hemispheric shape and is coated with a metal.

23. (Withdrawn) The method of claim 21 wherein the second electrode is formed on an inner surface of the housing by flash metallization.

24. (Withdrawn) The method of claim 21 wherein the first and the second electrodes are sealed inside the housing with a sintered metal and a seal material that yields under high pressure.

25. (Withdrawn) The method of claim 24 wherein the sintered metal comprises copper wool.

26. (Withdrawn) The method of claim 21 wherein a distal end of the housing is dome shaped, the method further comprising the step of collecting and redirecting light generated by the arc lamp through the distal end of the housing.

27. (Withdrawn) The method of claim 21 wherein a material for the housing comprises quartz.

28. (Withdrawn) The method of claim 21, wherein the interventional device further comprises a feedback system and a light guide disposed adjacent a housing wall, the method further comprising the step of supplying a light output from the arc generated to the feedback system.

29. (Withdrawn) The method of claim 20 wherein the interventional device is selected from the group consisting of a catheter, an endoscope, a guide wire, a needle, and an introducer.

30. (Withdrawn) The method of claim 21 wherein a distal end of the interventional device performs as the housing.

31. (Canceled)

32. (Withdrawn) A method of generating light inside a mammalian body, comprising the steps of:

placing at least a distal portion of an interventional device inside a mammalian body, the distal device portion comprising a fluorescent light source, the light source comprising a rigid gas-containing tube;

electrically connecting the fluorescent light source through a proximal end of the interventional device to an energy source; and

causing the light source to generate a fluorescent light inside the body.

33. (Withdrawn) The method of claim 32 wherein the fluorescent light source comprises a flash tube coated with a phosphorescent or a fluorescing material.

34. (Withdrawn) The method of claim 32 wherein the fluorescent light source comprises an equipotential flash tube shaped to discharge uniformly.

35. (Withdrawn) The method of claim 34 wherein the fluorescent light source further comprises a dielectric material surrounding the flash tube and a pair of electrodes disposed at opposite sides of the dielectric material.

36. (Withdrawn) The method of claim 32 wherein the interventional device is selected from the group consisting of a catheter, an endoscope, a guide wire, a needle, and an introducer.

37. (Withdrawn) The method of claim 32, wherein the interventional device further comprise a balloon catheter having a polymeric stent placed on an external surface of a balloon portion.

38. (Withdrawn) The method of claim 37, further comprising the step of hardening the polymeric stent by irradiating the stent with the light generated by the fluorescent light source.

39. (Withdrawn) The method of claim 38 wherein the polymeric stent comprises an ultraviolet curable epoxy or an adhesive material.

40. (Withdrawn) The method of claim 32 wherein the fluorescent light source comprises:

- a Gunn-effect diode for generating radio-frequency energy;
- a dielectric resonator disposed adjacent the diode; and
- a gas tube comprising a gaseous substance that fluoresces when subjected to RF energy.

41. (Withdrawn) A method of generating light inside a mammalian body, comprising the steps of:

placing at least a distal portion of an interventional device inside a mammalian body, the distal device portion comprising a spark gap module;

electrically connecting the spark gap module through a proximal end of the interventional device to an energy source; and

causing the spark gap module to generate a spark inside the body.

42. (Withdrawn) The method of claim 41 wherein the spark gap module comprises two electrodes, the step of generating a spark comprising positioning the two electrodes in relation to each other for generating a spark across a gap between the two electrodes.

43. (Withdrawn) The method of claim 42, further comprising the step of sealing the two electrodes in a transparent housing.

44. (Withdrawn) The method of claim 43 further comprising the step of disposing a filter at a distal end of the housing for enhancing a desired light output.

45-46. (Canceled)

47. (Withdrawn) A method of generating light inside a mammalian body, comprising the steps of:

placing at least a distal portion of an interventional device light inside a mammalian body, the distal device portion comprising an incandescent lamp, the incandescent lamp comprising a housing, a pair of electrodes inside the housing and an oxidizing filament connecting the pair of electrodes, the housing being filled with a pre-selected gas capable of generating light of a predetermined color;

electrically connecting the incandescent lamp through a proximal end of the interventional device to an energy source; and

causing the incandescent lamp to generate short duration, high intensity light waves of the predetermined color for a medical purpose.

48. (Withdrawn) The method of claim 47 wherein the short duration comprises duration of less than 100 milliseconds.

49-51. (Canceled)

52. (Withdrawn) The method of claim 41, wherein the interventional device is selected from the group consisting of a catheter, an endoscope, a guide wire, a needle, and an introducer.

53. (Withdrawn) The method of claim 47, wherein the interventional device is selected from the group consisting of a catheter, an endoscope, a guide wire, a needle, and an introducer.

54-62. (Canceled)

63. (Previously presented) The method of claim 1, wherein the piezoelectric transducer comprises lead zirconate-titanate.

64. (Withdrawn) A medical device for providing sonoluminescent light inside a mammalian body, comprising:

an elongated medical device with a source for producing sonoluminescent light at a distal tip thereof, the source including:

a housing that is shaped to reflect and concentrate acoustic waves within an enclosed acoustic conducting medium;

a piezoelectric transducer;

a wave matching layer positioned adjacent the piezoelectric transducer;

a focusing lens having a flat surface adjacent the wave matching layer and a concave surface adjacent the acoustic conducting medium that focuses sound waves in the acoustic conducting medium; and

at least two electrodes for delivering pulses to the piezoelectric transducer and the wave matching layer.

65. (Withdrawn) The medical device of claim 64, wherein the housing is at least partly transparent to the sonoluminescent light emitted from the source.